

IN THE CLAIMS

1. A water filtration system, comprising:
  - a pressure vessel having an inlet port and an
  - 5 outlet port for raw water and at least one outlet port for water permeate;
  - a reverse osmosis membrane disposed within the pressure vessel and providing for cross-filtering of water passing from said inlet port to said outlet port;
  - 10 and
  - an electrostatic-field generator disposed within the pressure vessel and providing for a voltage gradient that reduces biofouling of the reverse osmosis membrane.
- 15 2. The system of claim 1, wherein:
  - the pressure vessel is a cylinder with said inlet and outlet at opposite ends;
  - the reverse osmosis membrane is a spiral wound
  - 20 type with an open central core; and
  - the electrostatic-field generator comprises a positive electrode and a ground disposed in said central core.
- 25 3. The system of claim 1, further comprising:
  - a high voltage direct current power source connected to the electrostatic-field generator.
- 30 4. The system of claim 3, wherein:
  - the high voltage direct current power source is such that it maintains said voltage gradient when water is standing still within the pressure vessel.

5. A method for reducing biofouling of reverse osmosis membranes, comprising:

passing water through a pressure vessel having ports for raw water and at least one outlet port for  
5 water permeate;

disposing a reverse osmosis membrane within said pressure vessel that provides for filtration of water passing from said inlet port to said outlet port;  
and

10 generating an electrostatic-field within the reverse osmosis membrane that provides for a voltage gradient inside said pressure vessel and that reduces biofouling of said reverse osmosis membrane.

15 6. The method of claim 5, further comprising:

maintaining said electrostatic-field during idle periods between passing water through said pressure vessel.

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